



SERVICE MANUAL

Product Type: PLASMA
Chassis: RF-03GB
Manual Series: PV155
Manual Part #:
Model Line: F Line
Product Year: 2003

Model Series:

P50W38
P50W38H
P50W38P

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PRODUCT SAFETY GUIDELINES

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-visual service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from Zenith Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

CAUTION: Do not attempt to modify this product in any way.

Never perform customized installations without manufacturer's approval.

Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.

5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST.** Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using a cart or stand that has not been listed by Underwriters Laboratories, Inc. for use with its specific model of television receiver or generically approved for use with TVs of the same or larger screen size.
8. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

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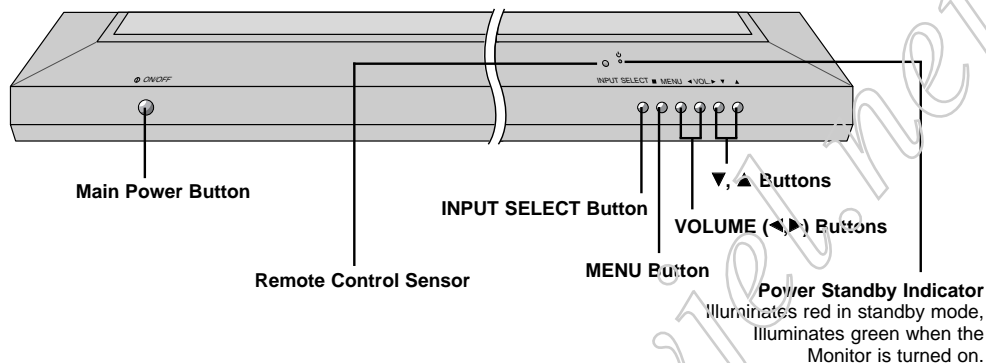
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DESCRIPTION OF CONTROLS

Controls

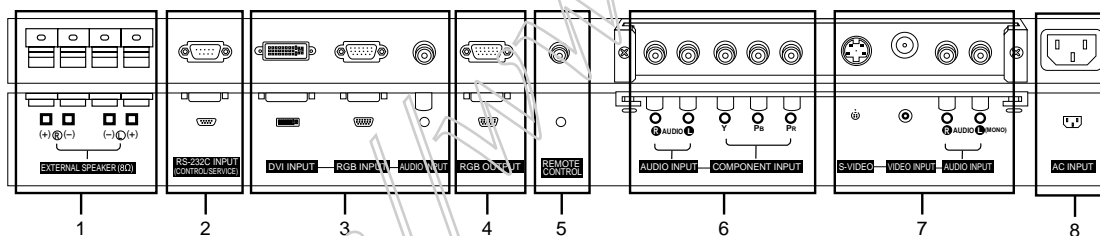
Front Panel Controls

- This is a simplified representation of front panel.
Here shown may be somewhat different from your monitor.



Connection Options

Back Connection Panel

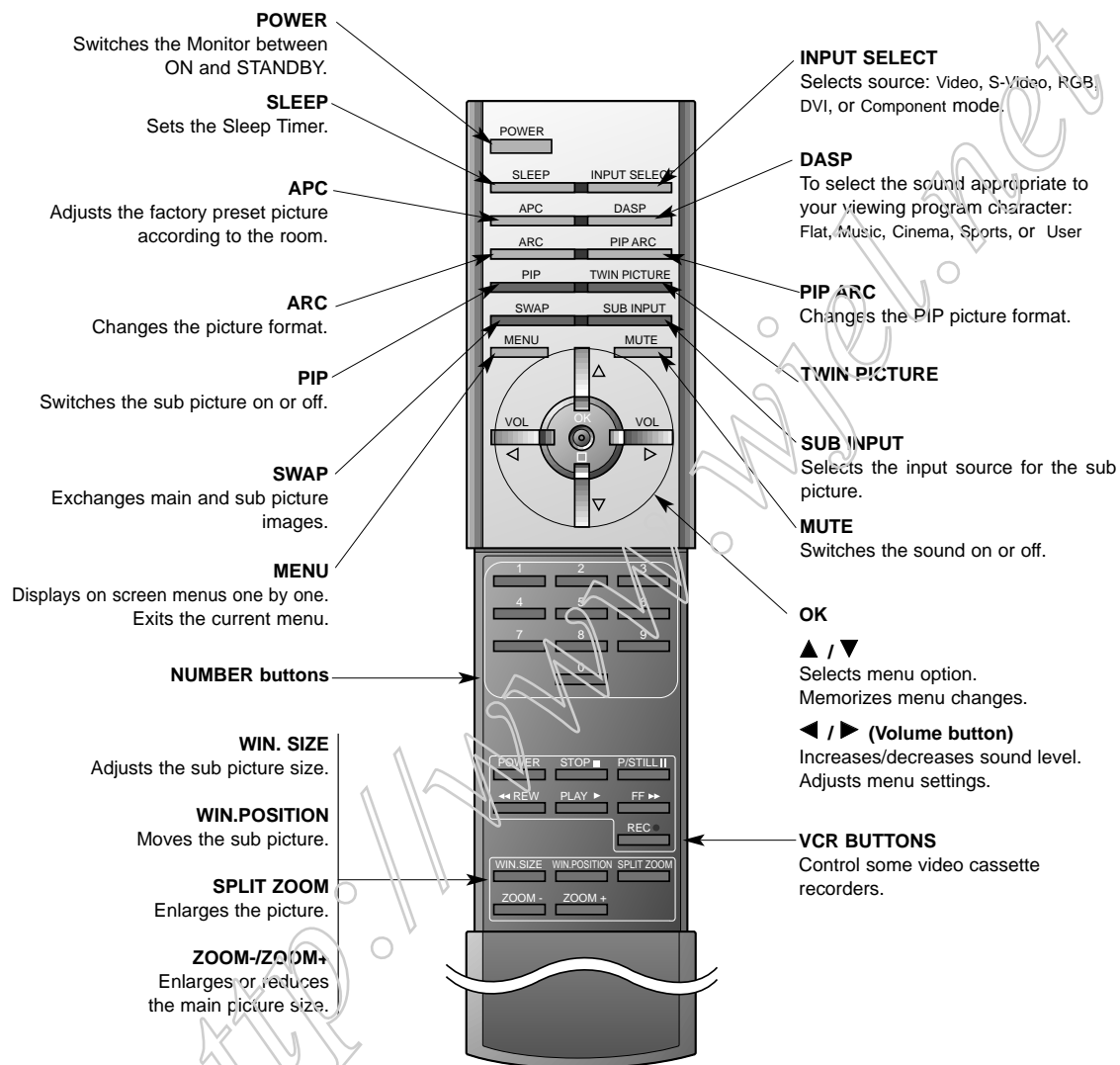


- 1. EXTERNAL SPEAKER (8 ohm output)**
Connect to optional external speaker(s).
* For further information, refer to 'Speaker & Speaker Stand' manual.
- 2. RS-232C INPUT (CONTROL/SERVICE) PORT**
Connect to the RS-232C port on a P.C.
- 3. DVI (Digital Visual Interface) INPUT/ RGB INPUT/AUDIO INPUT JACKS**
Connect the monitor output connector from a PC to the appropriate input port.
- 4. RGB OUTPUT PORT**
You can watch the RGB signal on another monitor, connect RGB OUTPUT to another monitor's PC input port.
- 5. REMOTE CONTROL**
Connect your wired remote control to the remote control port on the Monitor.
- 6. COMPONENT INPUT/AUDIO INPUT JACKS**
Connect a component video/audio device to these jacks.
- 7. S-VIDEO INPUTS**
Connect S-Video out from an S-VIDEO port on a VCR to the S-VIDEO input.
AUDIO/VIDEO INPUT JACKS
Connect audio/video out from external equipment to these jacks.
- 8. POWER CORD SOCKET**
This Monitor operates on an AC power. The voltage is indicated on the Specifications page. Never attempt to operate the Monitor on DC power.

DESCRIPTION OF CONTROLS

Remote Control Key Functions

- When using the remote control, aim it at the remote control sensor on the monitor.
- Under certain conditions such as if the remote IR signal is interrupted, the remote control may not function. Press the key again as necessary.



SPECIFICATIONS

MODELS	P50W38, P50W38H, P50W38P
<i>Width (inches / mm)</i>	48.2 / 1223
<i>Height (inches / mm)</i>	28.9 / 734
<i>Depth (inches / mm)</i>	4.1 / 105
<i>Weight (pounds / kg)</i>	95.2 / 43.2
<i>Power requirement</i>	AC120V, 60Hz
<i>Resolution</i>	1366 x 768 (Dot)
<i>Color</i>	16,770,000 (256 steps of each R, G and B)
<i>Operating Temperature Range</i>	32 ~ 104°F (0 ~ 40°C)
<i>Operating Humidity Range</i>	Less than 80%
<i>Maximum Elevation</i>	

- The specifications shown above may be changed without notice for quality improvement.

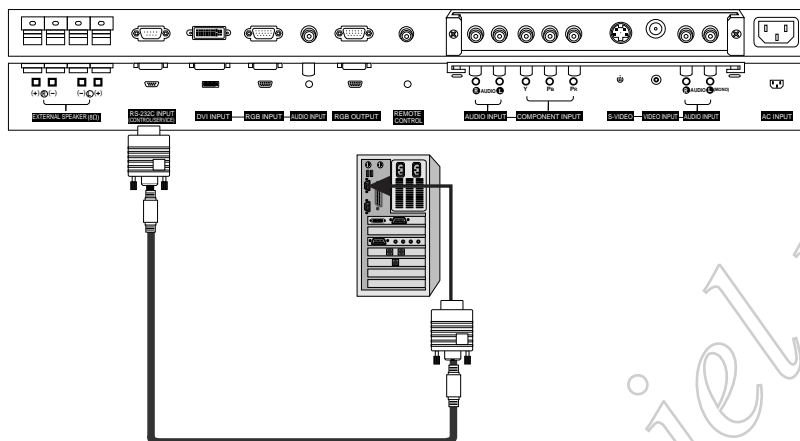
SPECIFICATIONS

Monitor Display Specifications (RGB-PC / DVI-PC Mode)

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)
640x350	31.468	70.09	852x480	31.500	60.00
	37.861	85.08		35.000	70.00
720x400	31.469	70.08		37.500	75.00
	37.927	85.03	1024x768	48.363	60.00
640x480	31.469	59.94		56.476	70.06
	35.000	66.66	1152x864	60.023	75.02
	37.861	72.80		54.348	60.05
	37.500	75.00		63.995	70.01
	43.269	85.00		67.500	75.00
800x600	35.156	56.25	1280x960	60.000	60.00
	37.879	60.31	1280x1024	63.981	60.02
	46.875	75.00	1360x768	47.700	60.00
	53.674	85.06		59.625	75.02
832x624	49.725	74.55	1366x768	47.700	60.00
848x480	31.500	60.00		59.625	75.02
	35.000	70.00			
	37.500	75.00			

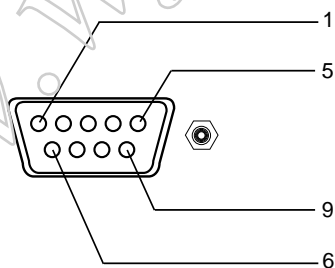
EXTERNAL CONTROL DEVICE SETUP

- Connect the RS-232C input jack to an external control device (such as a computer or an A/V control system) and control the Monitor's functions externally.
- Connect the serial port of the control device to the RS-232C jack on the Monitor back panel.
- RS-232C connection cables are not supplied with the Monitor.

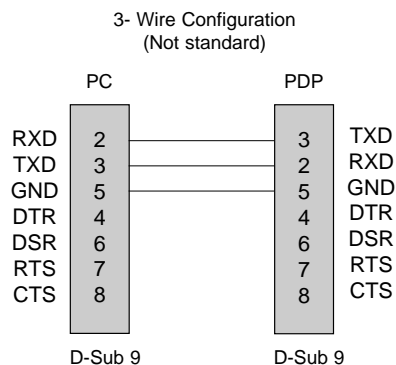
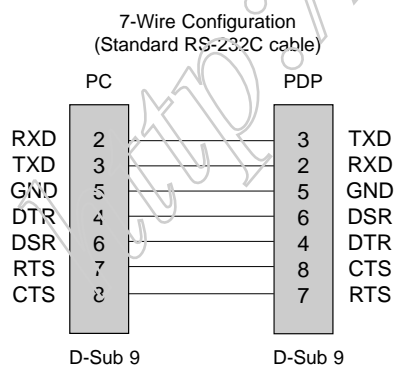


Type of Connector: D-Sub 9-pin Male

No.	Pin Name
1	No Connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection



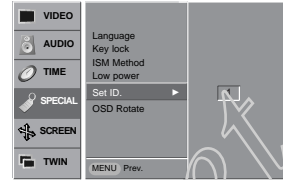
RS-232C Configurations



EXTERNAL CONTROL DEVICE SETUP

Set ID

- Use this function to specify a monitor ID number.
 - Refer to 'Real Data Mapping 1'. See page 27.
1. Press the **MENU** button and then use the **▲ / ▼** button to select the **SPECIAL** menu.
 2. Press the **▶** button and then use **▲ / ▼** button to select **Set ID**..
 3. Press the **▶** button and then use **◀ / ▶** button to adjust **Set ID**. to choose the desired monitor ID number.
 - The adjustment range of Set ID. is 1 ~ 99.



Communication Parameters

- Baud rate : 115200 bps (UART)
- Data length : 8 bits
- Parity : None
- Stop bit : 1 bit
- Communication code : ASCII code

Command Reference List

	COMMAND 1	COMMAND 2	DATA (Hexadecimal)
01. Power	k	a	0 ~ 1
02. Input Select	k	b	0 ~ 4
03. Aspect Ratio	k	c	0 ~ 3
04. Screen Mute	k	d	0 ~ 1
05. Volume Mute	k	e	0 ~ 1
06. Volume Control	k	f	0 ~ 64
07. Contrast	k	g	0 ~ 64
08. Brightness	k	h	0 ~ 64
09. Color	k	i	0 ~ 64
10. Tint	k	j	0 ~ 64
11. Sharpness	k	k	0 ~ 64
12. OSD Select	k	l	0 ~ 1
13. Remote Control Lock Mode	k	m	0 ~ 1
14. PIP/Twin	k	n	0 ~ 3
15. PIP Aspect Ratio	k	o	0 ~ 1
16. Split Zoom	k	p	21 ~ 99
17. PIP Position	k	q	0 ~ 3
18. Treble	k	r	0 ~ 64
19. Bass	k	s	0 ~ 64
20. Balance	k	t	0 ~ 64
21. Color Temperature	k	u	0 ~ 3
22. Red Adjustment	k	v	0 ~ C8
23. Green Adjustment	k	w	0 ~ C8
24. Blue Adjustment	k	\$	0 ~ C8
25. PIP Input Source	k	y	0 ~ 4
26. Abnormal State	k	z	0 ~ a
27. ISM Method	j	p	0 ~ 3
28. Low Power	j	q	0 ~ 1
29. Orbiter Time Setting	j	r	1 ~ FE
30. Orbiter Pixel Setting	j	s	0 ~ 9
31. Picture Size Setting for Twin Picture mode	j	t	0 ~ 64
32. Auto Configure	j	u	1

- Menu doesn't display on screen when setting the 4, 12, 13, and 26 ~ 32.

Transmission / Receiving Protocol

Transmission

[Command1][Command2][][Set ID][][Data][Cr]

- * [Command 1]: k.
- * [Command 2]: To control PDP set.
- * [Set ID]: You can adjust the set ID to choose desired monitor ID number in Special menu. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected PDP set is controlled. Set ID is indicated as decimal (1~99) on menu and as Hexa decimal (0x0~0x63) on transmission/receiving protocol.
- * [DATA]: To transmit command data.
Transmit 'FF' data to read status of command.
- * [Cr]: Carriage Return
ASCII code '0x0D'
- * []: ASCII code 'space (0x20)'

OK Acknowledgement

[Command2][][Set ID][][OK][Data][x]

- * The Monitor transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

Error Acknowledgement

[Command2][][Set ID][][NG][x]

- * The Monitor transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

- Data
- 1: Illegal Code
 - 2: Not supported function
 - 3: Wait more time

EXTERNAL CONTROL DEVICE SETUP

01. Power (Command2:a)

- ▶ To control Power On/Off of the Monitor.

Transmission

[k][a][][Set ID][][Data][Cr]

Data 0 : Power Off 1 : Power On

Acknowledgement

[a][][Set ID][][OK][Data][x]

- ▶ To show Power On/Off.

Transmission

[k][a][][Set ID][][FF][Cr]

Data 0 : Power Off 1 : Power On

Acknowledgement

[a][][Set ID][][OK][Data][x]

* In a like manner, if other functions transmit 'FF' data based on this format, Acknowledgement data feedback presents status about each function.

02. Input Select (Command2:b) (Main Picture Input)

- ▶ To select input source for the Monitor.
You can also select an input source using the INPUT SELECT button on the Monitor's remote control.

Transmission

[k][b][][Set ID][][Data][Cr]

Data 0 : RGB 3 : S-video
1 : Component 4 : DVI
2 : Video

Acknowledgement

[b][][Set ID][][OK][Data][x]

03. Aspect Ratio (Command2:c) (Main picture format)

- ▶ To adjust the screen format.
You can also adjust the screen format using the ARC (Aspect Ratio Control) button on remote control or in the Special menu.

Transmission

[k][c][][Set ID][][Data][Cr]

Data 0 : Wide screen (16:9)
1 : Normal screen (4:3)
2 : Full screen (Zoom)
3 : Horizon

Acknowledgement

[c][][Set ID][][OK][Data][x]

* You select either 16:9 or 4:3 screen aspect ratio using the PC, DTV 720p/1080i.

04. Screen Mute (Command2:d)

- ▶ To select screen mute on/off.

Transmission

[k][d][][Set ID][][Data][Cr]

Data 0 : Screen mute off (Picture on)
1 : Screen mute on (Picture off)

Acknowledgement

[d][][Set ID][][OK][Data][x]

05. Volume Mute (Command2:e)

- ▶ To control volume mute on/off.
You can also adjust mute using the MUTE button on remote control.

Transmission

[k][e][][Set ID][][Data][Cr]

Data 0 : Volume mute on (Volume off)
1 : Volume mute off (Volume on)

Acknowledgement

[e][][Set ID][][OK][Data][x]

06. Volume Control (Command2:f)

- ▶ To adjust volume.
You can also adjust volume with the volume buttons on remote control.

Transmission

[k][f][][Set ID][][Data][Cr]

Data Min : 0 ~ Max : 64

- Refer to 'Real data mapping1' as shown below.

Acknowledgement

[f][][Set ID][][OK][Data][x]

07. Contrast (Command2:g)

- ▶ To adjust screen contrast.
You can also adjust contrast in the Video menu.

Transmission

[k][g][][Set ID][][Data][Cr]

Data Min : 0 ~ Max : 64

- Refer to 'Real data mapping1' as shown below.

Acknowledgement

[g][][Set ID][][OK][Data][x]

* Real data mapping 1

0 : Step 0
:
A : Step 10 (SET ID 10)
:
F : Step 15 (SET ID 15)
10 : Step 16 (SET ID 16)
:
64 : Step 100

EXTERNAL CONTROL DEVICE SETUP

08. Brightness (Command2:h)

- To adjust screen brightness.
You can also adjust brightness in the Video menu.

Transmission

[k][h][][Set ID][][Data][Cr]

Data Min : 0 ~ Max : 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[h][][Set ID][][OK][Data][x]

09. Color (Command2:i)

- To adjust the screen color.
You can also adjust color in the Video menu.

Transmission

[k][i][][Set ID][][Data][Cr]

Data Min : 0 ~ Max : 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[i][][Set ID][][OK][Data][x]

10. Tint (Command2:j)

- To adjust the screen tint.
You can also adjust tint in the Video menu.

Transmission

[k][j][][Set ID][][Data][Cr]

Data Red : 0 ~ Green : 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[j][][Set ID][][OK][Data][x]

11. Sharpness (Command2:k)

- To adjust the screen sharpness.
You can also adjust sharpness in the Video menu.

Transmission

[k][k][][Set ID][][Data][Cr]

Data Min : 0 ~ Max : 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[k][][Set ID][][OK][Data][x]

12. OSD Select (Command2:l)

- To select OSD (On Screen Display) on/off.

Transmission

[k][l][][Set ID][][Data][Cr]

Data 0: OSD off 1: OSD on

Acknowledgement

[l][][Set ID][][OK][Data][x]

13. Remote Control Lock Mode (Command2:m)

- To lock the remote control and front panel controls on the monitor

Transmission

[k][m][][Set ID][][Data][Cr]

Data 0: Lock off 1: Lock on

Acknowledgement

[m][][Set ID][][OK][Data][x]

- If you're not using the remote control and front panel controls on the monitor, use this mode. When main power is on/off, remote control lock is released.

14. PIP / Twin (Command2:n)

- To control the PIP (Picture-in-Picture) or Twin Picture.
You can also control the PIP/Twin picture mode using the PIP or TWIN PICTURE button on the remote control or in the Twin menu.

Transmission

[k][n][][Set ID][][Data][Cr]

Data 0: PIP/DW off 2: DW1
1: PIP 3: DW2

Acknowledgement

[n][][Set ID][][OK][Data][x]

15. PIP Aspect Ratio (Command2:o)

- To select the PIP picture format.
You can also select the PIP picture format using PIP ARC on the remote control.

Transmission

[k][o][][Set ID][][Data][Cr]

Data 0: 4:3 1: 16:9

Acknowledgement

[o][][Set ID][][OK][Data][x]

16. Split Zoom (Command2:p)

- To operate split zoom function and select the split zoom section number.

Transmission

[k][p][][Set ID][][Data][Cr]

Data Min: 21 ~ Max: 99

- Refer to 'Real data mapping 2'.

Acknowledgement

[p][][Set ID][][OK][Data][x]

* Real data mapping 2

21: Selection 1 of 2 split zoom
24: Selection 4 of 2 split zoom
41: Selection 1 of 4 split zoom
42: Selection 2 of 4 split zoom
44: Selection 4 of 4 split zoom
45: Selection 5 of 4 split zoom
91: Selection 1 of 9 split zoom
⋮
99: Selection 9 of 9 split zoom

EXTERNAL CONTROL DEVICE SETUP

17. PIP Position (Command2:q)

- ▶ To select sub picture position for PIP.
You can also adjust the sub picture position using Win.position on the remote control or in the Twin menu.

Transmission

[k][q][][Set ID][][Data][Cr]

Data 0: Right down on screen
1: Left down on screen
2: Left up on screen
3: Right up on screen

Acknowledgement

[q][][Set ID][][OK][Data][x]

18. Treble (Command2:r)

- ▶ To adjust treble.
You can also adjust treble in the Audio menu.

Transmission

[k][r][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[r][][Set ID][][OK][Data][x]

19. Bass (Command2:s)

- ▶ To adjust bass.
You can also adjust bass in the Audio menu.

Transmission

[k][s][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[s][][Set ID][][OK][Data][x]

20. Balance (Command2:t)

- ▶ To adjust balance.
You can also adjust balance in the Audio menu.

Transmission

[k][t][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: 64

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[t][][Set ID][][OK][Data][x]

21. Color Temperature (Command2:u)

- ▶ To adjust color temperature.
You can also adjust ACC in the Video menu.

Transmission

[k][u][][Set ID][][Data][Cr]

Data 0: Normal 1: Cool 2: Warm 3: User

Acknowledgement

[u][][Set ID][][OK][Data][x]

22. Red Adjustment (Command2:v)

- ▶ To adjust red in color temperature.

Transmission

[k][v][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: C8

- Refer to 'Real data mapping 3' as shown below.

Acknowledgement

[v][][Set ID][][OK][Data][x]

23. Green Adjustment (Command2:w)

- ▶ To adjust green in color temperature.

Transmission

[k][w][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: C8

- Refer to 'Real data mapping 3' as shown below.

Acknowledgement

[w][][Set ID][][OK][Data][x]

24. Blue Adjustment (Command2:\$)

- ▶ To adjust blue in color temperature.

Transmission

[k][\$][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: C8

- Refer to 'Real data mapping 3' as shown below.

Acknowledgement

[\$][][Set ID][][OK][Data][x]

* Real data mapping 3

0 : -20
5 : -19
A : -18
:
5F: -1
64: 0
69: +1
:
C3: +19
C8: +20

EXTERNAL CONTROL DEVICE SETUP

25. PIP Input Select (Command2:y)

- To select input source for sub picture in PIP mode.

Transmission

[k][y][][Set ID][][Data][Cr]

Data 0: RGB 1: Component
2: Video 3: S-video 4: DVI

Acknowledgement

[y][][Set ID][][OK][Data][x]

26. Abnormal State (Command2:z)

- To recognize an abnormal state.

Transmission

[k][z][][Set ID][][FF][Cr]

Data FF:Read

Acknowledgement

[z][][Set ID][][OK][Data][x]

Data 0: Normal (Power on and signal exist)
1: No signal (Power on)
2: Turn the monitor off by remote control
3: Turn the monitor off by sleep time function
4: Turn the monitor off by RS-232C function
5: 5V down
6: AC down
7: Turn the monitor off by Fan Alarm function
8: Turn the monitor off by off time function
9: Turn the monitor off by auto off function
a: Turn the monitor off by AV board detect

27. ISM Method (Command2:p)

- To avoid having a fixed image remain on screen.

Transmission

[i][p][][Set ID][][Data][Cr]

Data 0: Normal 2: Orbiter
1: White wash 3: Inversion

Acknowledgement

[p][][Set ID][][OK][Data][x]

28. Low Power (Command2:q)

- To control the low power function on/off.

Transmission

[i][q][][Set ID][][Data][Cr]

Data 0: Low power off
1: Low power on

Acknowledgement

[q][][Set ID][][OK][Data][x]

29. Orbiter Time Setting (Command2:r)

- To adjust orbiter operation time term.

Transmission

[i][r][][Set ID][][Data][Cr]

Data Min: 1 ~ Max: FE

- Refer to 'Real data mapping 1'. See page 27.

Acknowledgement

[r][][Set ID][][OK][Data][x]

30. Orbiter Pixel Setting (Command2:s)

- To adjust pixel number in orbiter function.

Transmission

[i][s][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: 9

Acknowledgement

[s][][Set ID][][OK][Data][x]

31. Picture Size Setting for Twin Picture mode (Command2:t)

- To adjust main picture size in twin picture mode.

Transmission

[i][t][][Set ID][][Data][Cr]

Data Min: 0 ~ Max: 64

- Refer to 'Real data mapping1'. See page 27.

Acknowledgement

[t][][Set ID][][OK][Data][x]

32. Auto Configure (Command2:u)

- To adjust picture position and minimize image shaking automatically. Auto Configure only works in RGB-PC mode.

Transmission

[i][u][][Set ID][][Data][Cr]

Data 1: To set

Acknowledgement

[u][][Set ID][][OK][Data][x]

IR CODE

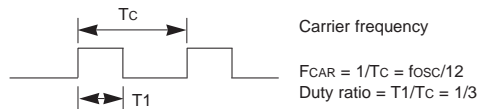
How to Connect

- Connect your wired remote control to the Remote Control port on the Monitor.

Remote Control IR Code

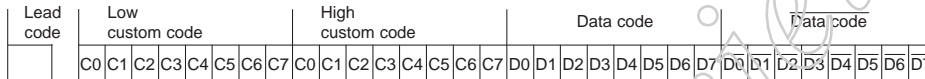
► Output waveform

Single pulse, modulated with 37.917KHz signal at 455KHz

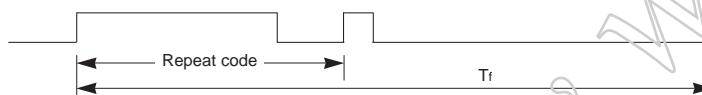


► Configuration of frame

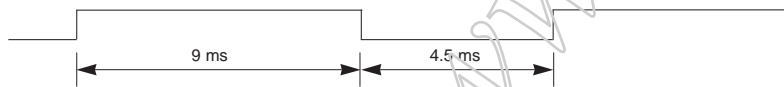
• 1st frame



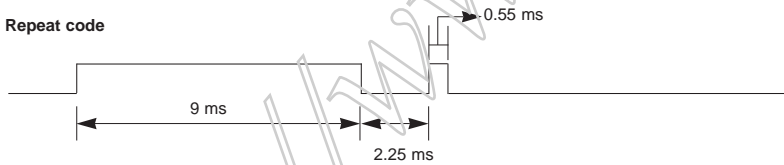
• Repeat frame



► Lead code

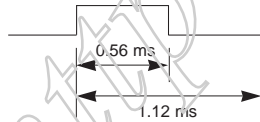


► Repeat code

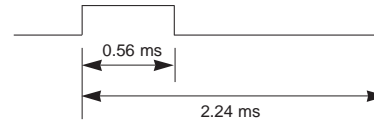


► Bit description

• Bit "0"

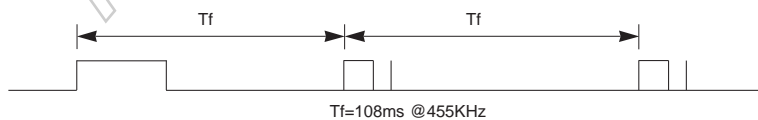


• Bit "1"



► Frame interval : Tf

The waveform is transmitted as long as a key is depressed.



IR CODE

Code (Hexa)	Function	Note
00H	UP (▲)	R/C Button
01H	DOWN (▼)	R/C Button
02H	VOL+ (►)	R/C Button
03H	VOL- (◄)	R/C Button
08H	POWER On/Off	R/C Button (Power On/Off)
C4H	POWER ON	Discrete IR Code (Only Power On)
C5H	POWER OFF	Discrete IR Code (Only Power Off)
09H	MUTE	R/C Button
10H	Number Key 0	R/C Button
11H	Number Key 1	R/C Button
12H	Number Key 2	R/C Button
13H	Number Key 3	R/C Button
14H	Number Key 4	R/C Button
15H	Number Key 5	R/C Button
16H	Number Key 6	R/C Button
17H	Number Key 7	R/C Button
18H	Number Key 8	R/C Button
19H	Number Key 9	R/C Button
0BH	ALL INPUT SELECT	R/C Button (RGB/DVI/Video/S-video/Component)
D5H	RGB	Discrete IR Code (Input RGB Selection)
C6H	DVI	Discrete IR Code (Input DVI Selection)
5AH	VIDEO	Discrete IR Code (Input Video Selection)
D8H	S-VIDEO	Discrete IR Code (Input S-video Selection)
BFH	COMPONENT	Discrete IR Code (Input Component Selection)
0EH	SLEEP	R/C Button
44H	OK (■)	R/C Button
43H	MENU	R/C Button
52H	DASP	R/C Button
4DH	APC	R/C Button
60H	PIP	R/C Button
61H	SUB INPUT	R/C Button
63H	SWAP	R/C Button (PIP/TWIN Exchange)
64H	PIP ARC	R/C Button (4:3/16:9)
6BH	TWIN PICTURE	R/C Button
40H	ZOOM +	R/C Button
41H	ZOOM -	R/C Button
69H	Window Size	R/C Button
6AH	Window Position	R/C Button
7BH	Split Zoom	R/C Button
79H	ARC	R/C Button(4:3/16:9/Zoom Mode Selection)
76H	ARC (4:3)	Discrete IR Code (Only 4:3 mode)
77H	ARC (16:9)	Discrete IR Code (Only 16:9 mode)
AFH	ARC (ZOOM)	Discrete IR Code (Only ZOOM mode)
99H	Auto configure	Discrete IR Code (Only RGB-PC mode)

ADJUSTMENT INSTRUCTIONS

1. Application Object

These instructions are applied to all of the PDP monitor, RF-03GB.

2. Notes

- (1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
- (2) Adjustment must be done in the correct order.
- (3) The adjustment must be performed in the circumstance of $25\pm5^{\circ}\text{C}$ of temperature and $65\pm10\%$ of relative humidity if there is no specific designation.
- (4) The input voltage of the receiver must keep 100~240V, 50/60Hz during adjustment.
- (5) The receiver must be operated for about 15 minutes prior to the adjustment.

1) After receiving 100% white pattern (06CH), the receiver must be operate prior to adjustment. (Or white condition in HEAT-RUN mode)

2) Enter into HEAT-RUN mode

- Press the POWER ON KEY on R/C for adjustment.
- OSD display HEAT-RUN WHITE and screen display 100% full WHITE PATTERN.

* Set is activated HEAT-RUN without signal generator in this mode.

* Single color pattern of HEAT-RUN mode uses to check PANEL. (RED/BLUE/GREEN)

[Caution] If you turn on a still screen more than 20 minutes (Especially Digital pattern(13 CH), Cross Hatch Pattern), a afterimage may be occur in the black level part of the screen.

3. RGB Auto Cut-Off & MIN Bias MAX Bias Adjustment

- (1) Input Full White (255 Gray) signal which generated from Standard Equipment into RGB1 Input part.
- (2) Press POWER ON KEY on the service R/C for adjustment and select Auto Cut-Off.
- (3) Press Vol. + key and operate TO-SET.
- (4) Original Full White screen will be seen about 3~5 seconds later. And if there is a display of OK OSD, then the Auto Cut-off, MIN Bias and MAX Bias adjustment will be completed.
- (5) After adjustment, press ■ key to save adjustment and come out of exit the adjustment mode.

- You can check whether circuit adjustment is operated well or not, as below.

- (1) Display RGB1 to the Main picture, CVBS to the Sub picture in the TWIN PICTURE.
- (2) To check the MIN-Bias, input Full Black (0 gray) signal into CVBS and RGB1 input port at the same time from the Pattern Generator.
- (3) To check the MAX-Bias, input Full White (255 gray) signal into CVBS and RGB1 input port at the same time from the Pattern Generator.
- (4) Compare Black Level with White Level by eye. And if there is no Level difference, the adjustment is completed well.

- Data value, which adjusted in the board, is valid until the VSC Board is dissued and must be protected. For the protection of data, Micom does not permit any more adjustment after completion.

- ~~If the price which is adjusted does unavoidably and the case must become the re-adjustment the method which it does again with lower part is same.~~

- ~~After pressing the InStart Key on the Remote Control of adjustment, the InStop Key on the Remote Control of adjustment it confirms that the adjustment mode OSD floats from the condition which presses the MENU button on the Local Key and when adjustment li it presses, becomes the Power off and it becomes initially anger. And after the Power on it re-is adjusted again.~~

~~Each PCB Assy must be checked by Check JIG Set before assembly. (Especially, be careful Power PCB Assy which can cause fatal Damage to PDP Module.)~~

5. POWER PCB Assy Voltage Adjustment (Va, Vs Voltage Adjustment)

5-1 Test Equipment : D.M.M 1EA

5-2 Connection Diagram for Measuring

Refer to Fig 1.

5-3 Adjustment Method

(1) Va Adjustment

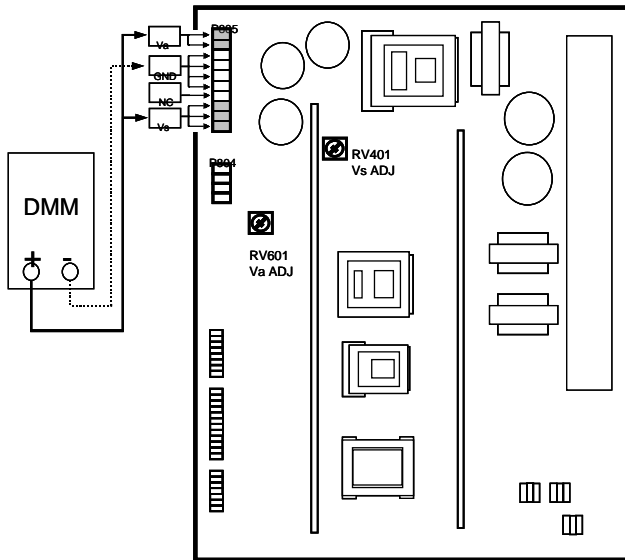
- 1) Connect + terminal of D.M.M to Va pin of P805 and connect – terminal to GND pin of P805.
- 2) After turning the RV601, voltage of D.M.M adjustment as same as Va voltage which is on the label of the PCB Right/Top. (Deviation : $\pm 0.5\text{V}$)

(2) Vs adjustment

- 1) Connect + terminal of D.M.M to Vs pin of P805 and connect – terminal to GND pin of P805.

ADJUSTMENT INSTRUCTIONS

- 2) After turning the RV401, voltage of D.M.M adjustment as same as Vs voltage which on the label of the PCB Right/Top (Deviation : $\pm 0.5V$)



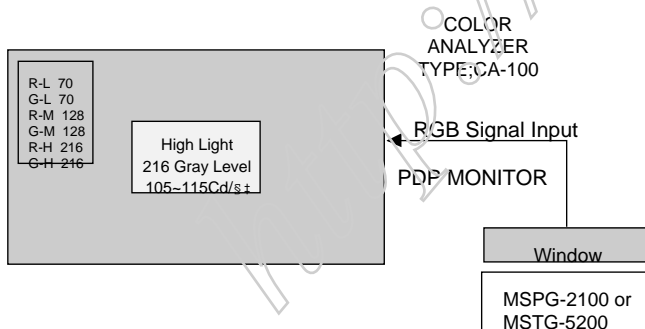
<Fig 1> Connection Diagram of Power Adjustment for Measuring

6. White Balance Adjustment

6-1. Required Equipment

Color analyzer (CA-100 or same product)

6-2. Connection Diagram of Equipment for Measuring (Manual Adjustment)



<Fig 2> Connection Diagram of Manual Adjustment(High Light)

6-3. White Balance Adjustment

- Operate the Zero-calibration of the CA-100, then stick sensor to PDP module surface when you make adjustment.
- For manual adjustment, it is also possible by the following sequence.

- (1) Select WHITE PATTERN of HEAT RUN mode by pressing POWER ON KEY on service remote control then operate HEAT RUN more than 15 minute.
- (2) Supply 216Gray Level, 50% size length and breadth signal to RGB input. (Refer to Fig 2)
- (3) W/B adjustment must be adjusted only High Light and then save the adjustment value with **■** Key.
- (4) To adjust High Light, stick sensor to 216 Gray Level (or 105-115 Cd/m²) Pattern, press ADJ Key on R/C for adjustment and press **▲**, **▼** on R/C in adjustment mode to select R-L or G-L, press VOL +, - Key and adjust it until color coordination becomes as below.
X: 0.275 ± 0.003 , Y: 0.280 ± 0.003
Color temperature: $11,500^{\circ}K \pm 500^{\circ}K$

- (5) Exit adjustment mode using **■** Key.

6-4. RS-232C Communication Protocol & Transmission Parameter

(1) Communication Parameter

- 1) Communication Protocol & Transmission Parameter

- Communication Parameter
 - Data Length: 8bit
 - Parity: none
 - Stop bit: 1bit
 - Band Rate: 115200bps(UART)
 - Communication code: ASCII code

✧ Using Crossed(reverse) Cabel

- 2) Transmission · Receiving Protocol

Transmission[Command1][Command2][Set ID][Data][Cr]

* [Command1]: First command to control PDP Monitor (j or k)

* [Command2]: Second command to control PDP Monitor (a,b,c,...)

* [Set ID]: You can adjust the set ID to choose desired monitor ID number in special menu. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected set is controlled.

✧ Set ID is indicated as decimal (1~99) on menu and as Hexa decimal (0x0~0x63) on transmission/receiving protocol.

* [Data] : To transmit command data.

✧ Transmit 'FF' data to read status of command.

ADJUSTMENT INSTRUCTIONS

- * [Cr]: Carriage Return
ASCII code '0x0D'
- * []: ASCII code 'space (0x20)'

Transmission [command2[] [Set ID] [] [OK][Data][x]

The Set transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

OK Acknowledge [command2[] [Set ID] [] [OK][Data][x]

The Set transmits ACK (acknowledgement) based on this format when receiving abnormal data. At this time, if the data is data read mode(0xFF), it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

Error Acknowledge

[command2[] [Set ID] [] [OK][Data][x]

The Monitor transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors

- * Data [01]: illegal code
- [02]: not support function
- [03]: wait more time

- Command Reference List
Relation COMMAND of factory adjustment

	Command1	Command2
30. PC-R Adjustment	i	a
31. PC-G Adjustment	i	b
32. PC-B Adjustment	i	c
33. TV-R Adjustment	i	d
34. TV-G Adjustment	i	e
35. TV-B Adjustment	i	f
36. COM-R Adjustment	i	g
37. COM-G Adjustment	i	h
38. COM-B Adjustment	i	i
39. PC-R Adjustment	i	j
40. PC-G Adjustment	i	k
41. PC-B Adjustment	i	l

- EX) R Adjustment (Command1: j, Command2: a)

→ (high)PC white balance adjustment
[j][a][Set ID][Data][Cr] Data:0H~64H

Acknowledge

[a][Set ID][OK][Data][x] Data:0H~64H

→ Currently is transmission · receiving the R-GAIN Data which to the EEPROM.

Transmission

[j][a][Set ID][FF][Cr]

Acknowledge

[a][Set ID][OK][Data][x] Data:0H~64H

- Input Select (Command: b)(Input Main Picture) → Select the input signal of SET
It is identical function 'INPUT' Button on the Remote Control.

[k][b][Set ID][Data][Cr]

Data 0:RGB1, 1:Component, 2:VIDEO, 3:S-VIDEO, 4:RGB2

Acknowledge[b][Set ID][OK][Data][x]

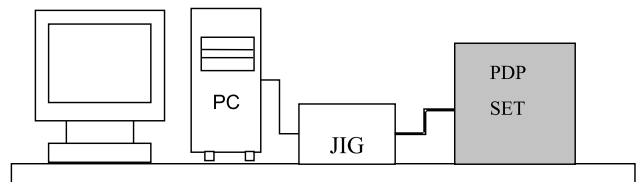
Data 0:RGB1, 1:Component, 2:VIDEO, 3:S-VIDEO, 4:RGB2

7. DDC Data Input

7-1. Required Test Equipment

- (1) A [] for adjusting PC, DDC. (PC serial to D-sub. Connection equipment)
- (2) S/W for writing DDC(EDID data write & read)
- (3) D-Sub 15P cable, D-Sub to DVI Connector (Connect to DVI Jack)

7-2. Setting of Device



7-3. Preparation for Adjustment

- (1) Set devices as above and turn the PC, [] on.
- (2) Put S/W for writing DDC (EDID data write & read) into operation. (operated in DOS mode.)

7-4. Sequence of Adjustment

(1) DDC Data Input for Analog-RGB

- 1) Put the set on the table and turn the power on.
- 2) Connect PC Serial to D-sub 15P Cable of [] for DDC Adjustment to RGB1 terminal (D-Sub 15Pin).
- 3) Operate S/W for DDC record and select DDC Data for Analog RGB in Model Menu.
- 4) Operate EDID Write command.
- 5) Operate EDID Read command and check whether Check Sum is OK.
- 6) If Check Sum is NG, repeat 3) ~ 4).
- 7) If Check Sum is OK, DDC Data for Analog-RGB input is completed.

ADJUSTMENT INSTRUCTIONS

(2) DDC Data input for Digital-RGB

- 1) Connect PC Serial to DVI Cable of JIG for DDC Adjustment to DVI terminal (DVI Jack).
- 2) Operate S/W for DDC record and select DDC Data for Digital RGB in Model Menu.
- 3) Operate EDID Write command.
- 4) Operate EDID Read command and check whether Check Sum is OK.
- 5) If Check Sum is NG, repeat 3) ~ 4).
- 6) If Check Sum is OK, DDC Data for Digital-RGB input is completed.

※ ~~The RGB terminal it leads certainly and to Analog RGB DDC Data Download percentage case to the DVI terminal it connects the Cable, it does not become, the DVI terminal it leads and and the Cable Digital RGB DDC Data to Download percentage case to the RGB terminal it connects, it does not become. Namely, the Cable in two terminals it has the JIG equipment which is identical and simultaneously it connects, the Download printed style of writing does not become~~

8. Component Off-Set adjustment

Input the signal to HD-STB(SK-010T) and receive 14Ch.

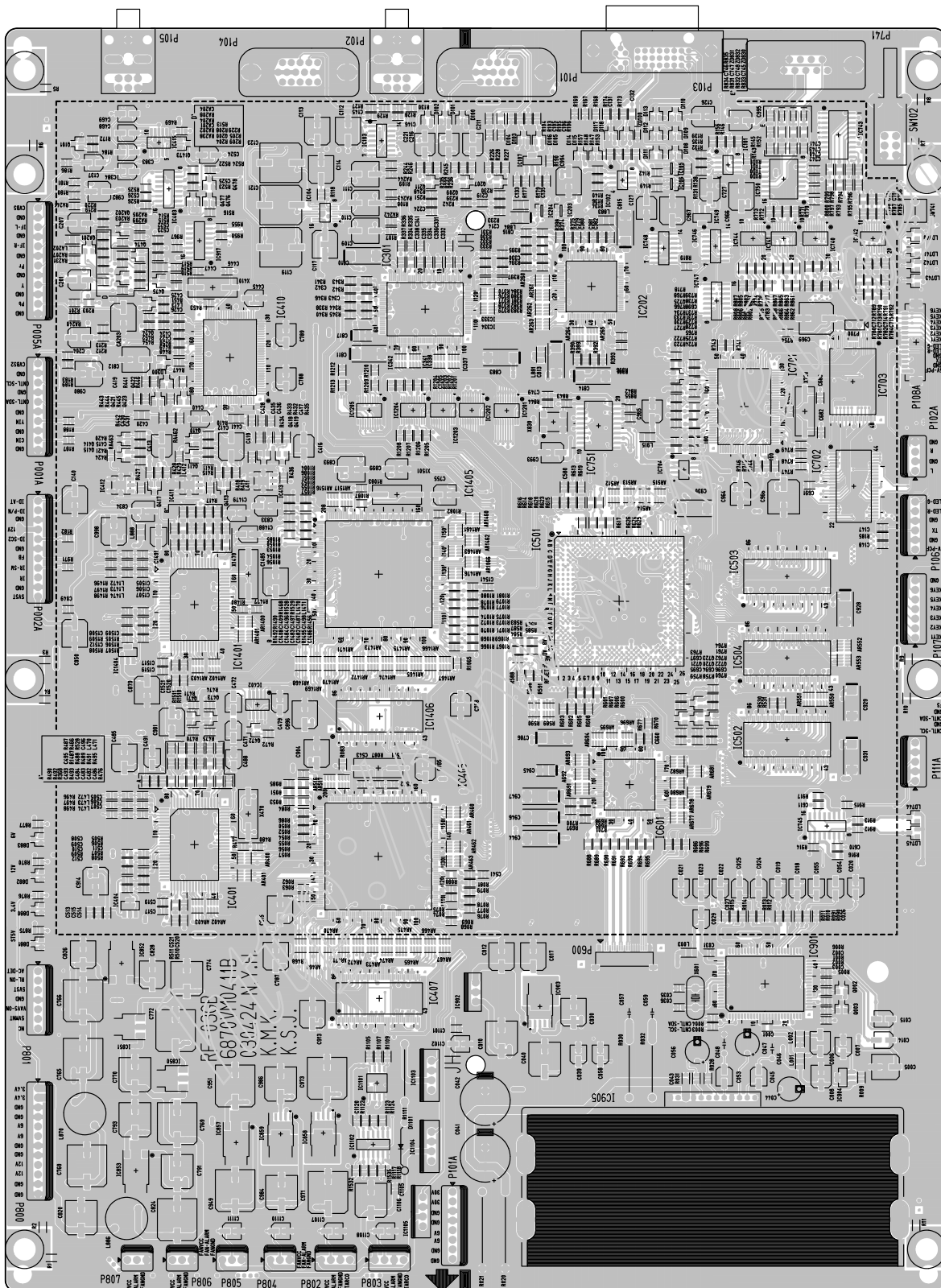
8-1. Required Equipment

HD-STB (SK-010T or same product)

8-2. Manual Adjustment of Off-Set

- (1) Input Video signal and Component 720P, 1080i signal of HD-STB into Video and Component input part.
- (2) Select Twin Picture by pressing ADJ twice on R/C, check component in the main picture and Video in the sub picture.
- (3) Adjust the G-OFFSET is identical "2" the degree which is visible of component(Main picture) and Video Input(Sub picture) by pressing Volume +, - key.
- (4) Adjust the R-OFFSET, B-OFFSET color impression of component(Main picture) and external input(Sub picture) same by pressing Volume +, - key.

MAIN(TOP)

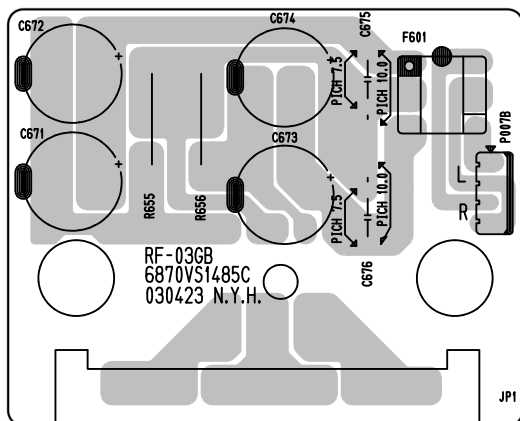


MAIN(BOTTOM)

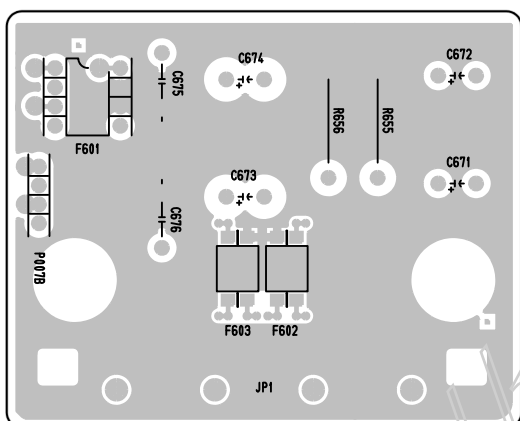


PRINTED CIRCUIT BOARD

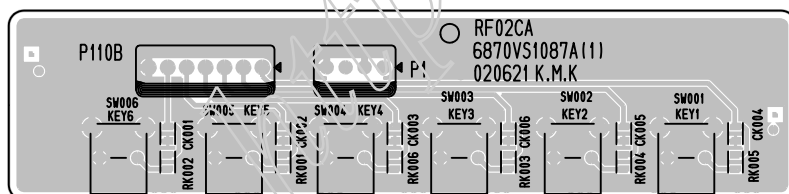
SPK (TOP)



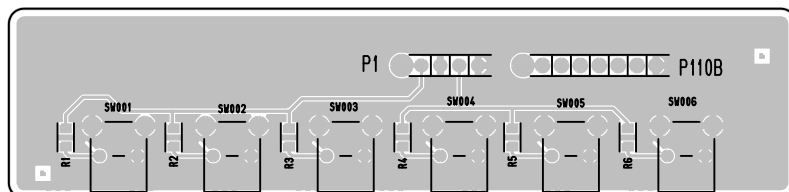
SPK (BOTTOM)



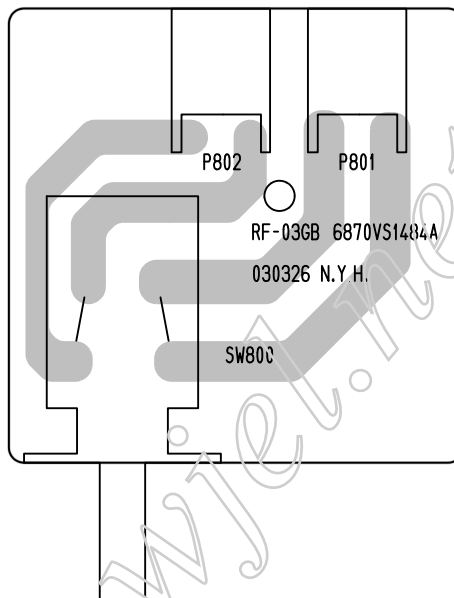
LOCAL KEY(TOP)



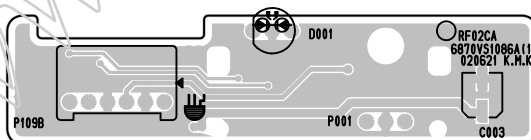
LOCAL KEY(BOTTOM)



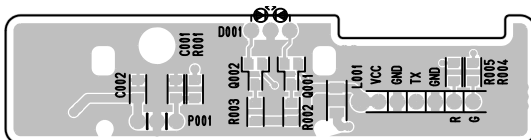
POWER SWITCH



PRE-AMP(TOP)

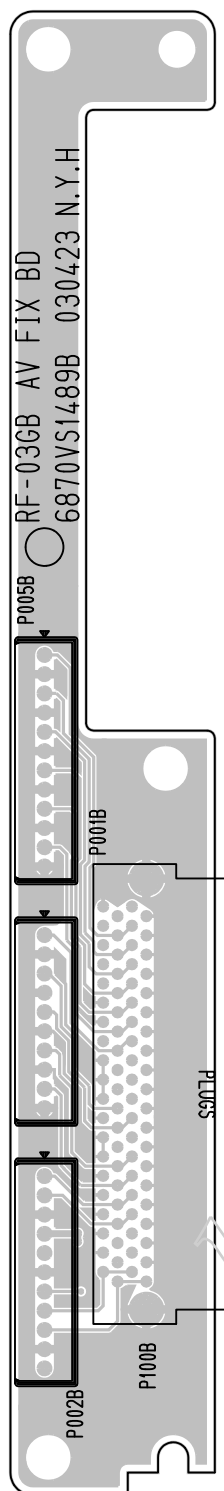


PRE-AMP(BOTTOM)

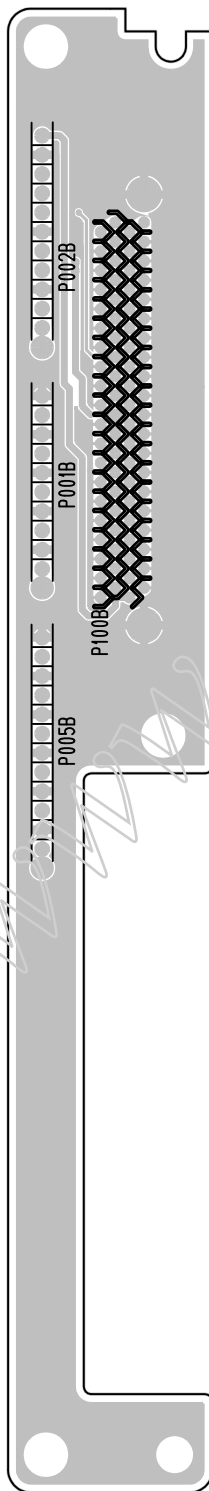


PRINTED CIRCUIT BOARD

AV FIX BOARD (TOP)

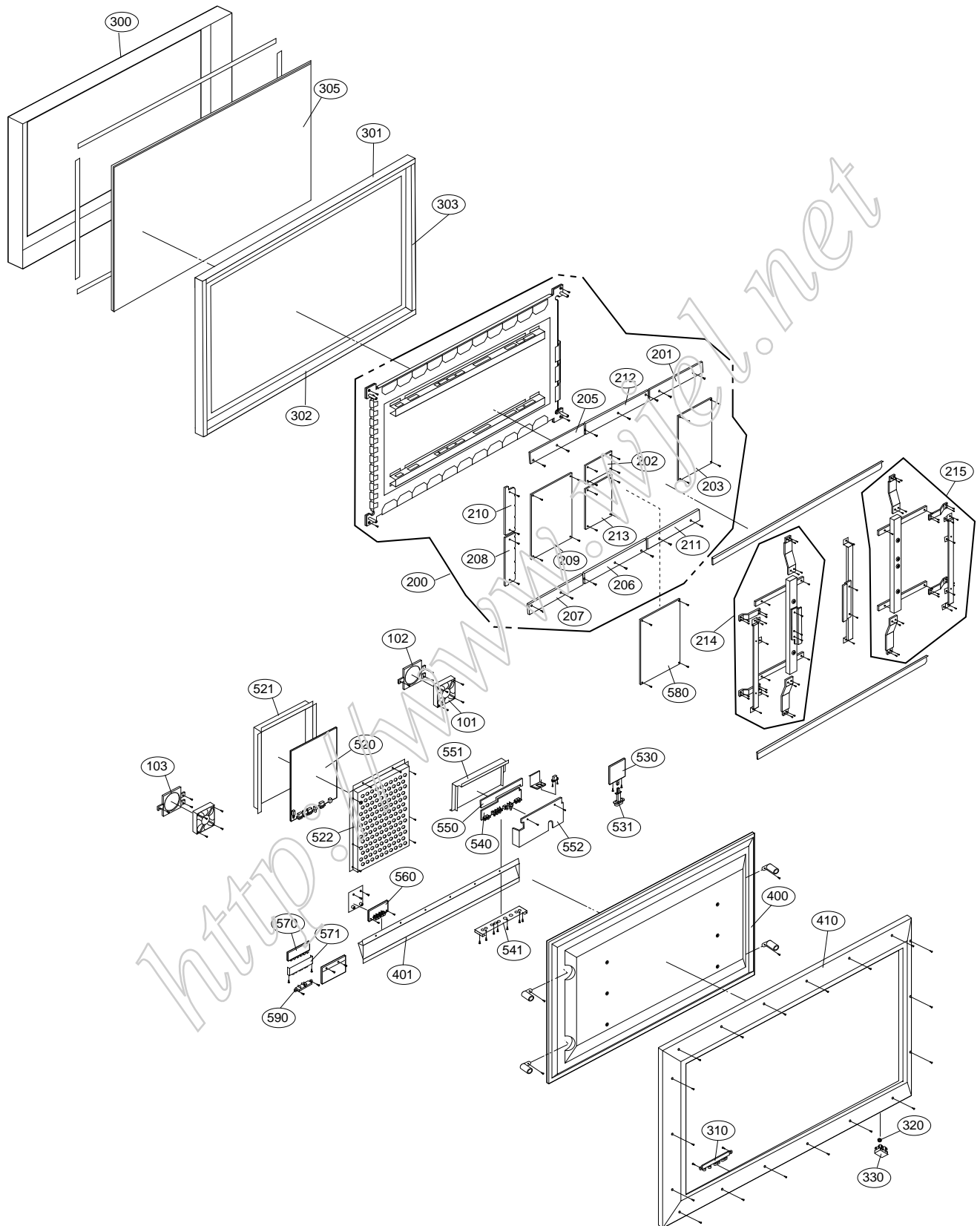


AV FIX BOARD (BOTTOM)





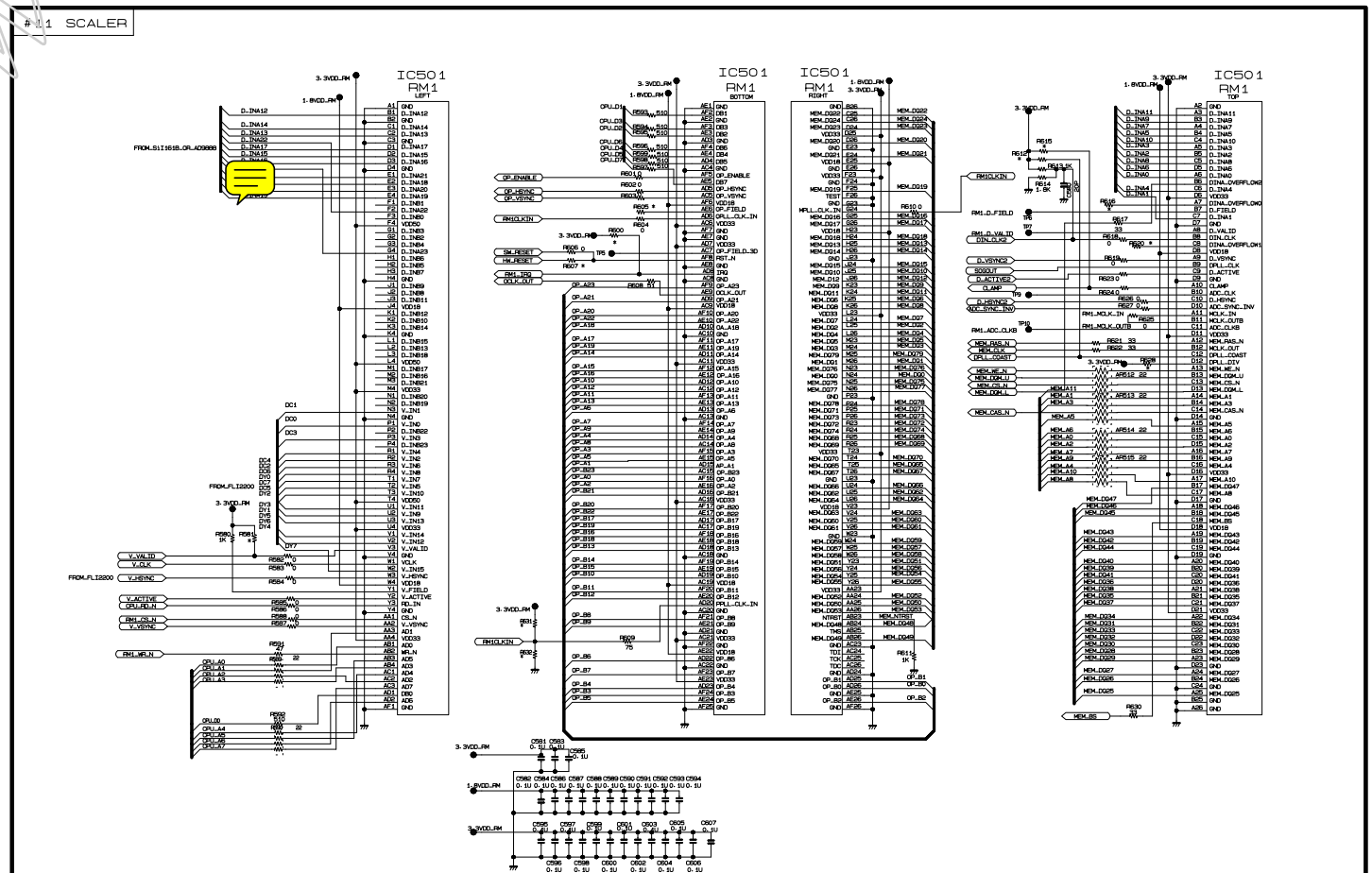
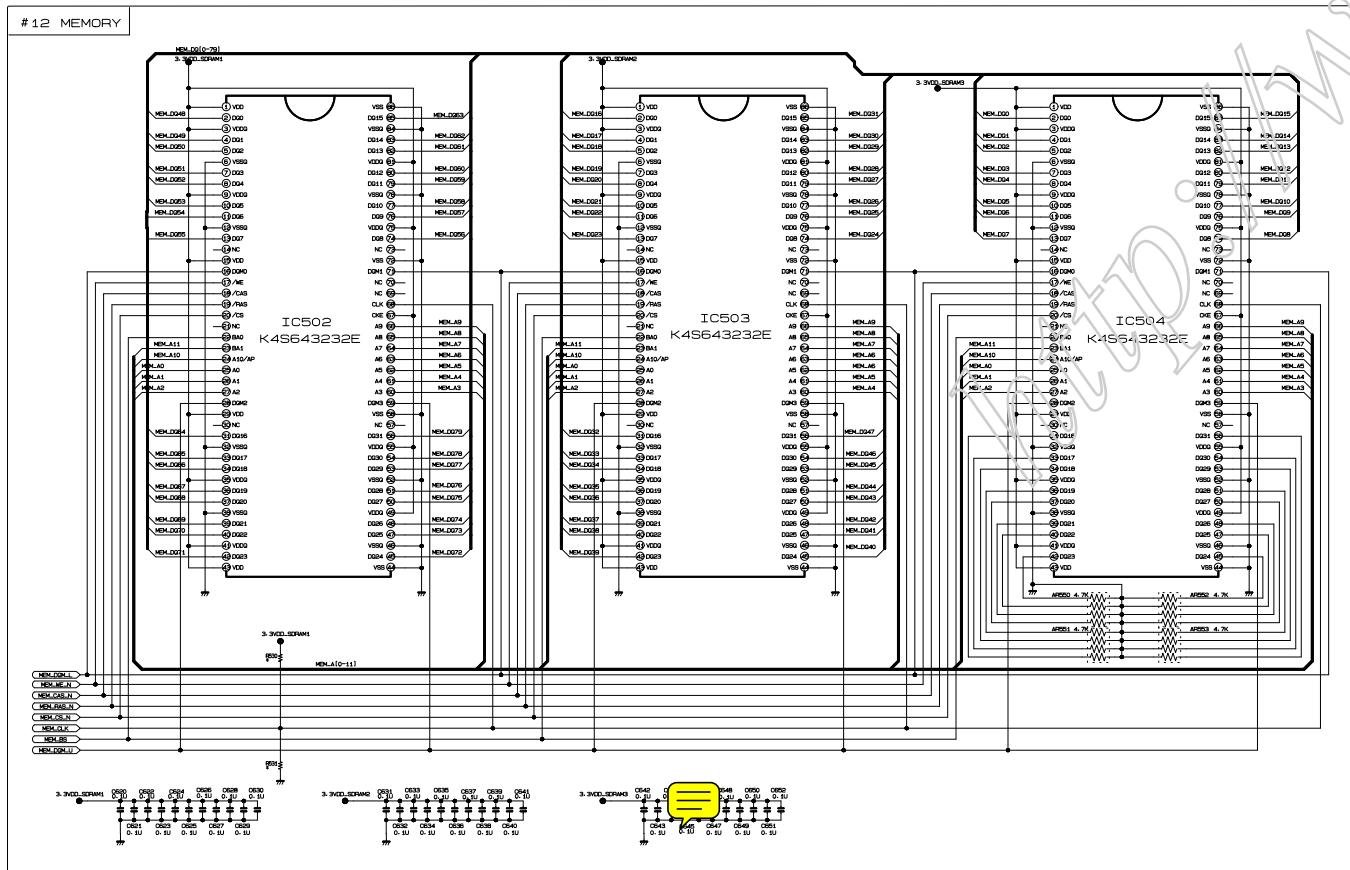
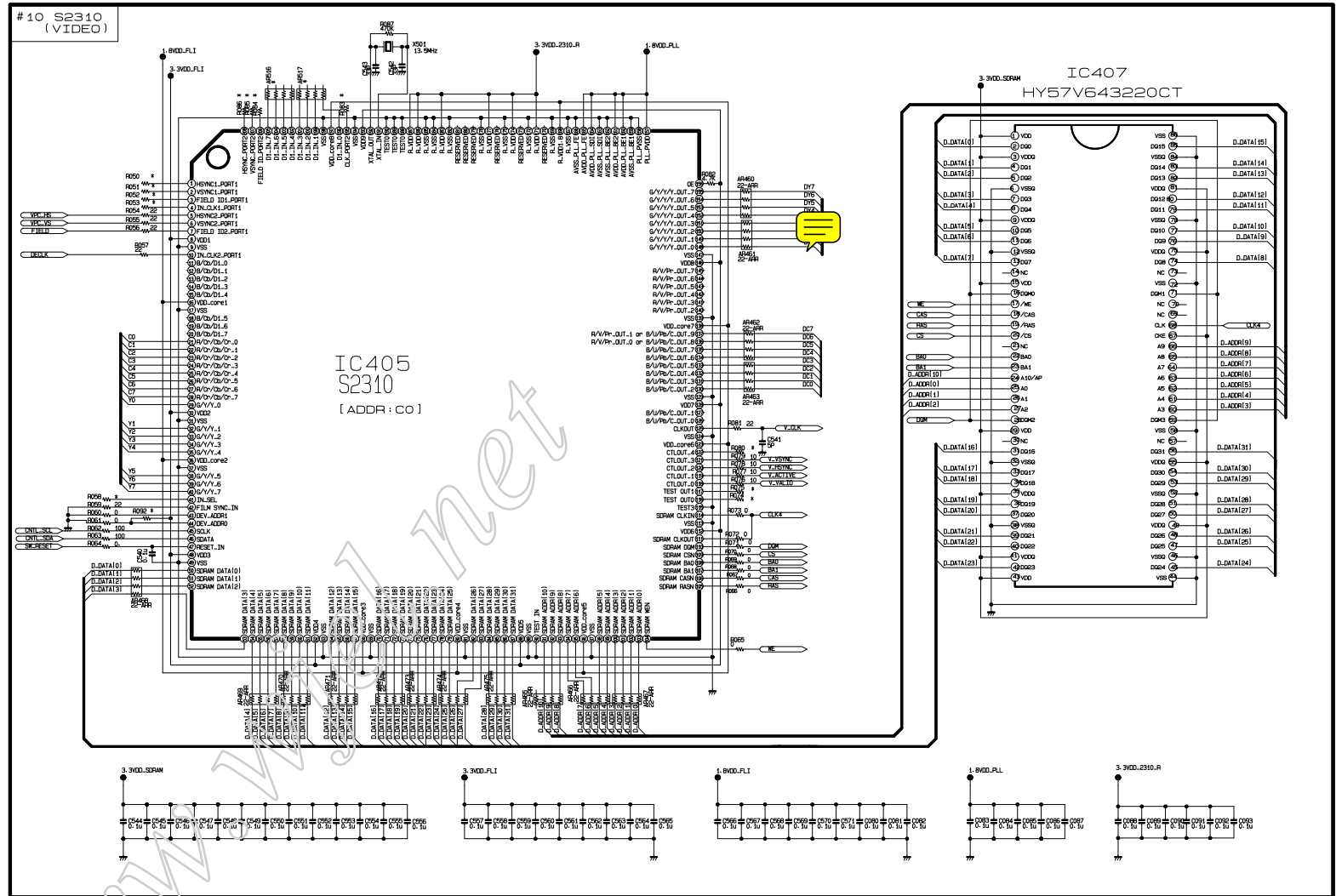
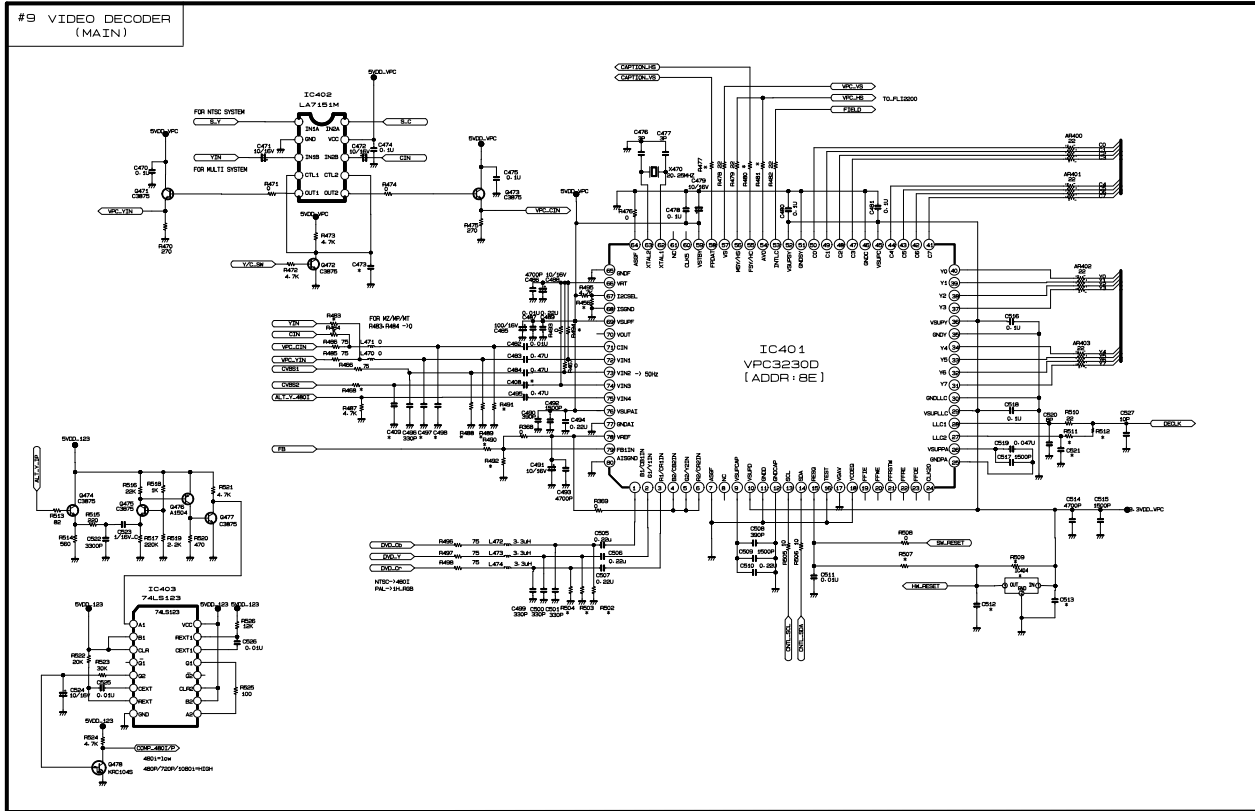
EXPLODED VIEW



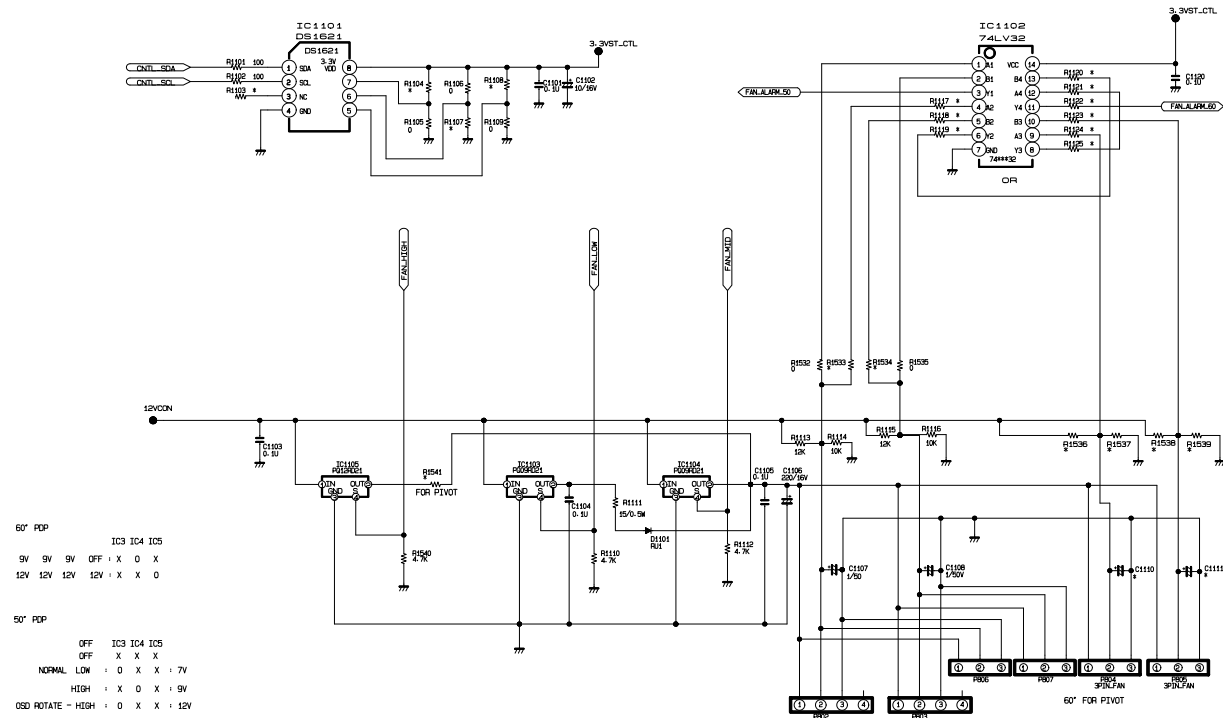
EXPLODED VIEW PARTS LIST

No.	Part No.	Description
101	5900V12001A	FAN,DC G1225S12B2 12X12X25 12V130MA 1500 168GM MOTOR L=260
102	4980V00781A	SUPPORTER ASSY,NON FAN(L) MN-50PZ10
103	4980V00782A	SUPPORTER ASSY,NON FAN(R) MN-50PZ10
200	6348Q-C032A	PDP,50 16:9 1365*768 KK, FOR INTERCOMPANY DOMESTIC
201	6871QRH035A	PCB ASSEMBLY,DISPLAY XRRT ASSY 50X2 X_RT 4LAYER 260MM X 280MM
202	6871QPH008A	PCB ASSEMBLY,DISPLAY DCDC ASSY KK MODEL
203	6871QZH031A	PCB ASSEMBLY,DISPLAY ZSUS ASSY 50KK 2LAYER
205	6871QLH032A	PCB ASSEMBLY,DISPLAY XRLT ASSY 50X2 X_LT 4LAYER 352.5 X 280
206	6871QXH021A	PCB ASSEMBLY,DISPLAY XRCB ASSY 50X2 X_CB 4LAYER 415.5MM X 280MM
207	6871QLH033A	PCB ASSEMBLY,DISPLAY XRLB ASSY 50X2 X_LB 4LAYER 352.5 X 280
208	6871QDH049A	PCB ASSEMBLY,DISPLAY YDRV ASSY 50V/XDP2 4L(BTM)
209	6871QYH028A	PCB ASSEMBLY,DISPLAY YSUS ASSY 50KK 4LAYER
210	6871QDH048A	PCB ASSEMBLY,DISPLAY YDRV ASSY 50V/XDP2 4L(TOP)
211	6871QRH036A	PCB ASSEMBLY,DISPLAY XRRB ASSY 50X2 X_RB 4LAYER 260X 280
212	6871QXH020A	PCB ASSEMBLY,DISPLAY XRCT ASSY 50X2 X_CT 4LAYER 415.5 X 280
213	6871QCH028B	PCB ASSEMBLY,DISPLAY CTRL ASSY 50X2 280*180 PD4021
215	4980V00416E	SUPPORTER,MODULE AL MN-50PZ44VS LEFT
214	4980V00416F	SUPPORTER,MODULE AL MN-50PZ44VS RIGHT
300	3091V00433Z	CABINET ASSEMBLY,MZ-50PZ45V NON RF03GB
301	4980V00361A	SUPPORTER,FILTER EGI MN-50PZ40
302	4980V00362A	SUPPORTER,FILTER EGI MN-50PZ40
303	4980V00363A	SUPPORTER,FILTER EGI MN-50PZ40
305	3790V00683B	FILTER(MECH),MN-50PZ41 115001S03E GLASS NBK MESH SINGLE AR
310	5020V00688A	BUTTON,CONTROL MN-50PZ41 . SET
320	320-062H	SPRING,COIL
330	5020V00645A	BUTTON,POWER OUTER MN-50PZ40 SET
400	3809V00292A	BACK COVER ASSEMBLY,MN-50PZ40 NON NON
401	3301V00016J	PLATE ASSEMBLY,A/V 3300V00163 MU-50PZ44V
410	3809V00293G	BACK COVER ASSEMBLY,MU-50PZ44 NON FOR KK
520	6871VMMR17A	PCB ASSEMBLY,MAIN RF-03GB MU 50KK VSC MAIN 40TOOL
521	4814V00323E	SHIELD ASSY,MN-50PZ10 NON AL BOTTOM
522	4814V00387A	SHIELD ASSY,MN-50PZ90V NON NON VSC TOP
530	6871VSMV26A	PCB ASSEMBLY,SUB PSW RF03GB 50 KK POWES S/W
531	5020V00648A	BUTTON,POWER INNER MN-50PZ40 SET
540	6871VSMV31A	PCB ASSEMBLY,SUB A/V RF03GB KK 50 A/V BOARD
541	4980V00729F	SUPPORTER ASSY,NON MN-50PZ90 INTERFACE
550	6871VSMV30A	PCB ASSEMBLY,SUB A/V RF03GB FIX BOARD
551	4980V00936A	SUPPORTER,NON EGI AV
552	4814V00388B	SHIELD,CASE MN-50PZ90V RF03GB AL AV
560	6871VSMV28A	PCB ASSEMBLY,SUB SPK RF03GB 50 KK SPK TERMINAL
570	6871VSMD08A	PCB ASSEMBLY,SUB KBD RF-02CA 50IN LOCAL KEY
571	5020V00647A	BUTTON,CONTROL S/W INNER MN-50PZ40 SET
580	3501V00084D	BOARD ASSEMBLY,POWER MN50PZ10 RF03GB SRX-75 SONY 50KK
590	6871VSMD07A	PCB ASSEMBLY,SUB P/AMP RF-02CA 50IN PRE AMP

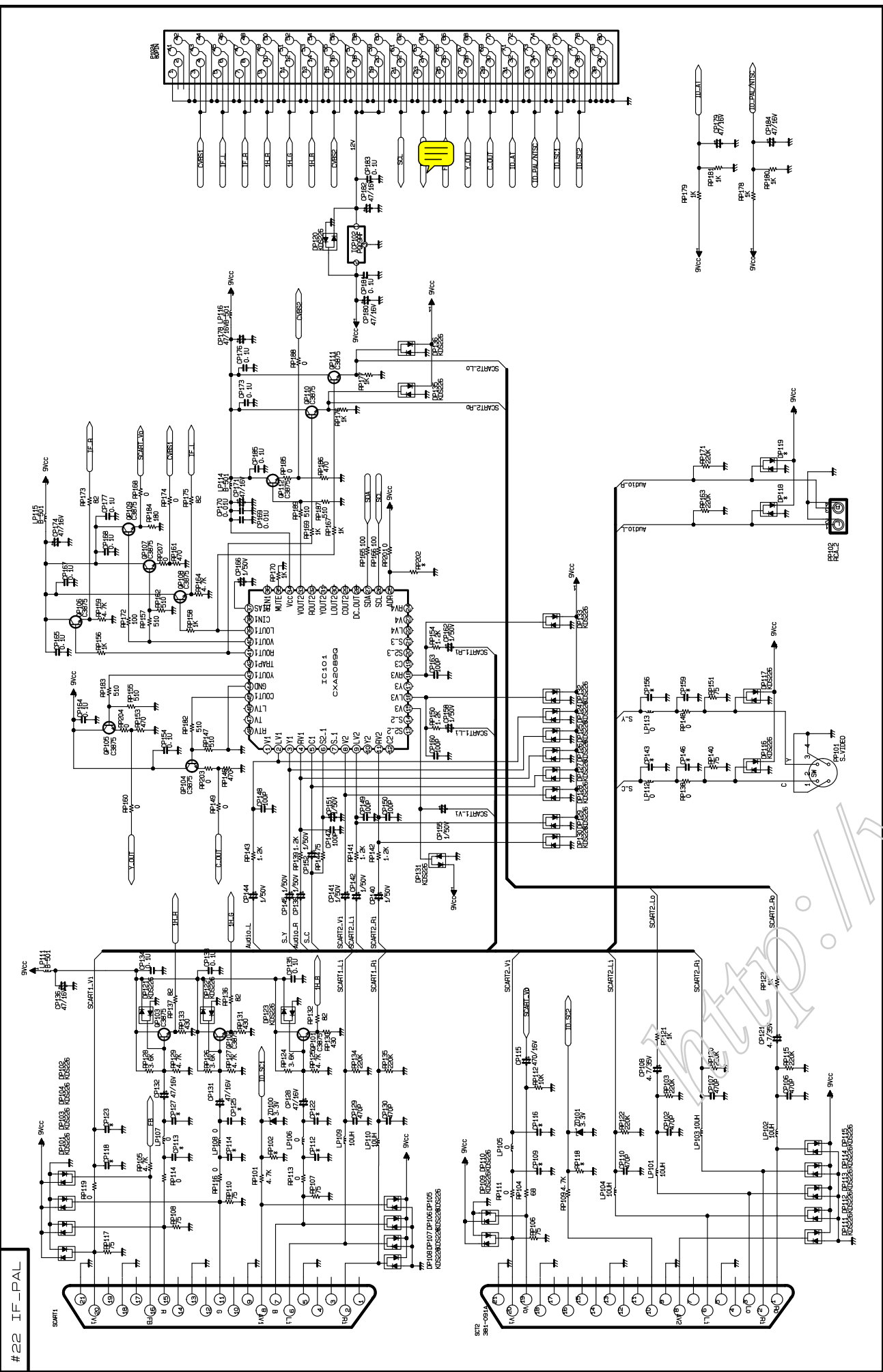
#5 VIDEO DECODER
(SUB)



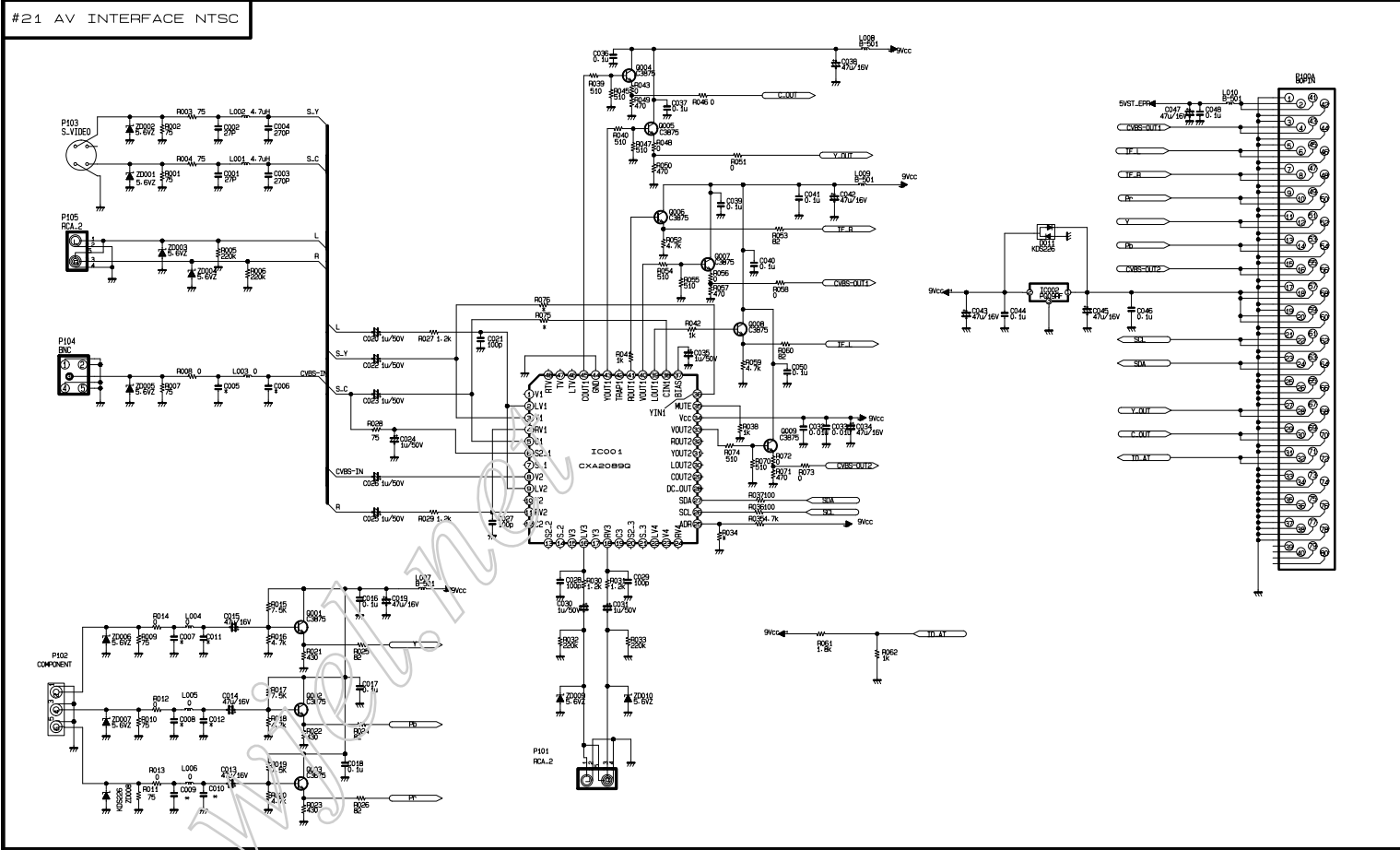
#20 FAN CONTROL



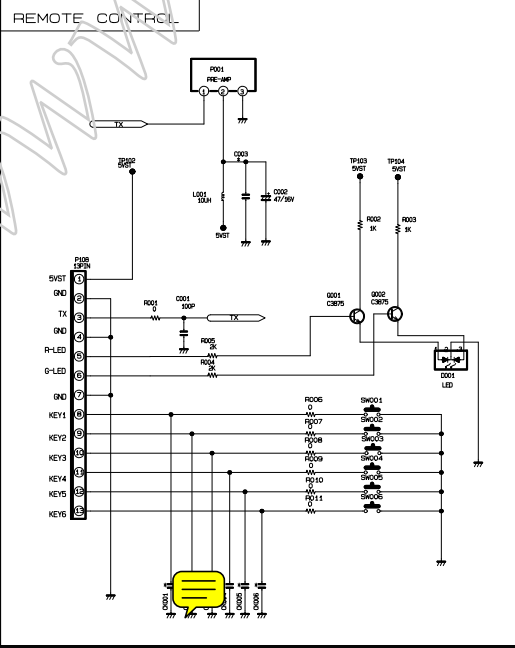
#22 IF-PAL



#21 AV INTERFACE NTSC



REMOTE CONTROL



SPEAKER

